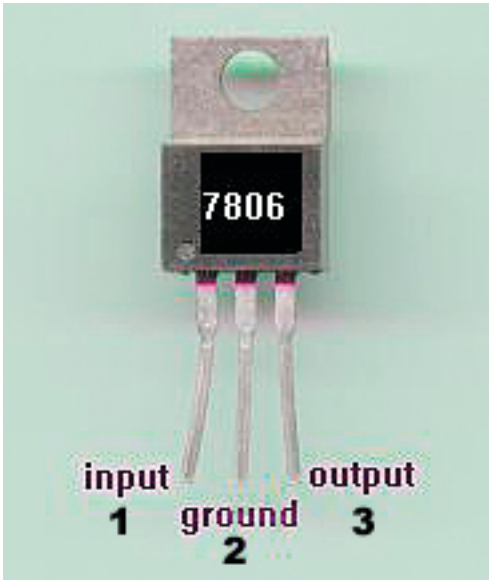
REGULATOR for RUNNING 6-VOLT INSTRUMENTS IN A 12-VOLT CAR

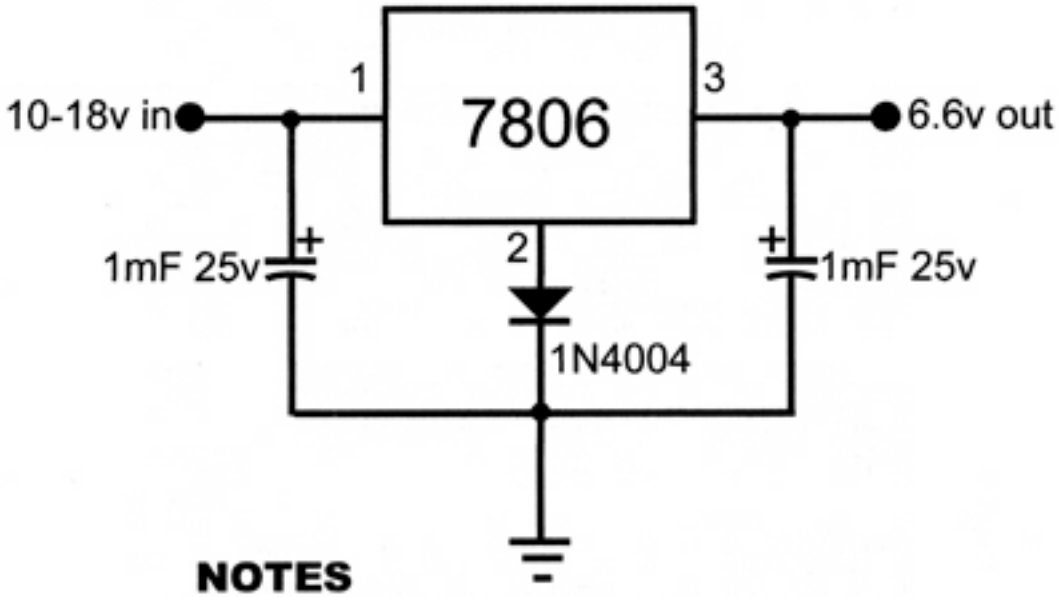
There are quite a few solid-state voltage regulators on the market that can be applied to automotive use. One of the simplest is the 7806, a 6 volt, 1 amp regulator.



These regulators are rugged, provide over-current shut down, and will give a constant **6.6 volts** output for currents from 0 to 1 amp when wired as shown. They're good for running low current 6-volt things like gauges.

When using the 7806, it's a good idea to connect a small capacitor from the input pin to ground and another from the output pin to ground. The value of the capacitors is fairly non-critical and any value from 0.1uF to 10uF (that's micro-Farads) @ 25volts or more will work just fine. The capacitors help protect the regulator from electrical noise, and to stabilize the output under certain load conditions.

The schematic for the complete regulator circuit looks like:



These parts are all readily available if you have a Radio Shack nearby.

The 7806 will make a little heat, and needs to be mounted on a small heatsink to keep it cool. A little dielectric grease smeared on the back of the regulator will help it conduct it's heat to the heatsink. The heatsink can be a 3" square of aluminum, or a commercially available piece.

The body of the transistor is the collector connection, so the case is always "hot", directly connected to 12 volts. It is very important to make sure that the transistor body can't contact any grounded chassis parts! In order to insulate the transistor from the heatsink, it's convenient to use an insulating washer at the mounting screw and a mica insulating sheet between the regulator and the heat sink.